

**Table 4.9a**  
**Water Quality Criteria for Dissolved Metals (at Critical Receiving Water Condition)**

	Dissolved Metal Concentration, ug/L				
		Cadmium	Copper	Lead	Zinc
WA WQ Standards (Present Criteria)	Acute	1.58	6.10	16.40	49.90
	Chronic	1.14	4.46	0.64	41.60
EPA Revised Standards (Future Criteria) Applies only to cadmium	Acute	0.83			
	Chronic	0.13			

**Table 4.9b**  
**Summary of Total Metals Composite Removal Efficiencies for AKART Treatment Alternatives**

Selected Efficiency in Range	AKART Treatment Alternative	Total Metal Composite Removal Efficiency, %			
		Cadmium	Copper	Lead	Zinc
Minimum	1	45	44	60	39
	2	45	44	60	39
	3	23	25	43	28
	4	55	47	64	45
Average	1	67.5	71	78.5	68
	2	67.5	71	78.5	68
	3	38	42	64.5	46
	4	63.5	58.5	74.5	57.5
Maximum	1	90	98	97	97
	2	90	98	97	97
	3	53	59	86	64
	4	72	70	85	70

**Table 4.9c**  
**Effluent Pollutant Concentrations for Total Metals at Select Locations Using AKART Treatment Alternatives**

Location of Pollutant Concentration	AKART Treatment Alternatives	Total Metal Concentration, ug/L (Minimum Efficiency in Range Applied)					Total Metal Concentration, ug/L (Average Efficiency in Range Applied)					Total Metal Concentration, (Maximum Efficiency in Range)		
		Cadmium (present criteria)	Cadmium (future criteria)	Copper	Lead	Zinc	Cadmium (present criteria)	Cadmium (future criteria)	Copper	Lead	Zinc	Cadmium (present criteria)	Cadmium (future criteria)	Copper
Stormwater Runoff <sup>a</sup>	Untreated	5.0	5.0	22.3	21.9	129.8	5.0	5.0	22.3	21.9	129.8	5.0	5.0	22.3
At Discharge Pipe to Spill Control Lagoon	1	2.8	2.8	12.5	8.8	79.2	1.6	1.6	6.5	4.7	41.5	0.5	0.5	0.4
	2	2.8	2.8	12.5	8.8	79.2	1.6	1.6	6.5	4.7	41.5	0.5	0.5	0.4
	3	3.9	3.9	16.7	12.5	93.5	3.1	3.1	12.9	7.8	70.1	2.4	2.4	9.1
	4	2.3	2.3	11.8	7.9	71.4	1.8	1.8	9.3	5.6	55.2	1.4	1.4	6.7
In Spill Control Lagoon (at end of WQ Treatment Storm event)	1	0.23	0.23	1.04	0.73	6.6	0.14	0.14	0.54	0.39	3.5	0.0	0.0	0.04
	2	0.23	0.23	1.04	0.73	6.6	0.14	0.14	0.54	0.39	3.5	0.0	0.0	0.04
	3	0.32	0.32	1.39	1.0	7.8	0.26	0.26	1.08	0.65	5.8	0.2	0.2	0.76
	4	0.19	0.19	0.98	0.66	5.9	0.15	0.15	0.77	0.47	4.6	0.1	0.1	0.56
At 10-ft Mixing Zone Boundary <sup>b</sup> (located 10 ft beyond lagoon boundary)	1	0.09	0.09	0.43	0.30	2.7	0.06	0.06	0.22	0.16	1.4	0.02	0.02	0.02
	2	0.09	0.09	0.43	0.30	2.7	0.06	0.06	0.22	0.16	1.4	0.02	0.02	0.02
	3	0.13	0.13	0.58	0.43	3.2	0.11	0.11	0.45	0.27	2.4	0.08	0.08	0.32
	4	0.08	0.08	0.41	0.27	2.5	0.06	0.06	0.32	0.19	1.9	0.05	0.05	0.23
At 100-ft Mixing Zone Boundary <sup>b</sup>	1	0.02	0.02	0.11	0.07	0.7	0.01	0.01	0.06	0.04	0.4	0.00	0.00	0.00

(located 100 ft beyond lagoon boundary)	2	0.02	0.02	0.11	0.07	0.7	0.01	0.01	0.06	0.04	0.4	0.00	0.00	0.00
	3	0.03	0.03	0.14	0.11	0.8	0.03	0.03	0.11	0.07	0.6	0.02	0.02	0.08
	4	0.02	0.02	0.10	0.07	0.6	0.02	0.02	0.08	0.05	0.5	0.01	0.01	0.06

Coding

**Does not meet Acute Water Quality Criteria (dissolved metals)**

X.X

Notes

Alternative 1: Conventional Sweeping + Modified Catch Basin/Cleaning + Media Filtration Vault

Alternative 2: Conventional Sweeping + Modified Catch Basin/Cleaning + Catch Basin Filtration

Alternative 3: Conventional Sweeping + Modified Catch Basin/Cleaning

Alternative 4: High Efficiency Sweeping + Modified Catch Basin/Cleaning

<sup>a</sup> Source: Kayhanian M., L. Hollingsworth, M. Spongberg, L. Regenmorter, and K. Tsay. January 2002. Characteristics of Stormwater Runoff from CalTrans Facilities.

<sup>b</sup> Dilution assumes 6-lane bridge alternative conditions during WQ Treatment Storm Event where all stormwater is conveyed to spill lagoon. Dilution factor of 12 in the spill control lagoon, 29 at the acute zone boundary, and 117 at the mixing zone boundary.

**Does not meet Chronic Water Quality Criteria (dissolved metals)**

X.X